

## In This Issue

|  |   |
|--|---|
| Vaccinating Goats Against Overeating Disease and Tetanus .....   | 1 |
| Magazines On-Line .....  | 2 |
| For Your Information.....  | 3 |
| Dallisgrass is good, but beware of staggers in late summer ..... | 3 |
| Time to start stockpiling fescue for winter grazing.....         | 4 |
| New Tar Pamlico River Basin.....                                 |   |
| Agriculture Rule Affects Livestock Farmers .....                 | 4 |

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## Vaccinating Goats Against Overeating Disease and Tetanus

By: *Jean-Marie Luginbuhl*  
*Extension Meat Goat Specialist*  
*Crop Science & Animal Science*

Although some producers have not experienced problems by not immunizing their goats so far, it is recommended to vaccinate the entire herd against overeating disease (enterotoxemia) and tetanus. Both diseases are caused by *clostridial bacteria*. Some formulations contain the overeating disease and tetanus vaccines in the same bottle. These 2-in-1 vaccines simplify herd preventive health programs and decrease costs.

### What is overeating disease?

Overeating disease is an acute, often fatal, disease affecting goats of all ages, but that tends to be more lethal in young kids, and often in those which are doing best. It is caused by the bacteria *Clostridium perfringens* types C and D. The bacteria are commonly found in the soil, and are present in the intestines of most normal goats.

The lethal action of these organisms is that they release toxins into the blood, which give rise to shock and nervous symptoms (type D), or cause inflammation of the lining of the gut and diarrhea with blood (type C). Avoiding the conditions which allow the organisms to proliferate in the intestines and release their toxins are important. The main danger period occurs during the first few days after any change of pasture or diet, such as a change from a high quality pasture to a poor pasture or to a higher level of concentrates. Changes

in feeding programs must therefore be gradual, and up to a week should be taken to change from one type of feed to another. It is also important to avoid overeating by kids, for example after they have become excessively hungry.

### What are the symptoms of overeating disease?

The symptoms include: twitching, star gazing, teeth grinding, fever, swollen stomach, diarrhea with blood, convulsions, and death within a few hours. Affected goats are often found dead or in a terminally shocked condition with convulsions.

### What is tetanus?

Tetanus is caused by a neurotoxin produced by the bacterium *Clostridium tetani*. This organism is very common in soil and in the manure of all animals. Bacterial spores enter the body through wounds following castration, ear tagging, disbudding, kidding, etc., resulting in signs of the disease 4 to 21 days later. The toxin affects the central nervous system.

### What are the symptoms of tetanus?

The symptoms include: stiff muscles, spasms, flared nostrils, erect ears and elevated tail. In addition, the affected animals have a difficult time opening their mouths, so the term lockjaw is sometimes given to the disease. Eventually, the affected animals lie down and die.

### What vaccine should be used?

- 1. *Clostridium perfringens* Types C and D +Tetanus Toxoid** in one vaccine is the first possibility. This vaccine is labeled for goats.
- 2. Multivalent clostridial vaccine**

# Magazines On-Line

by Roger L. McCraw

Listed below are URL's for several farm magazines that may be of interest to you. You may be able to get the information you need from the electronic version and not have to subscribe for hard copies.

■  
**BEEF**

<http://www.homefarm.com/>

■  
**HAY AND FORAGE GROWER**

<http://www.homefarm.com/hfg/default.htm>

■  
**SOUTHEAST FARM PRESS**

<http://www.homefarm.com/sefp/default.htm>

■  
**BEEF TODAY and FARM JOURNAL**

<http://www.agweb.com/>

■  
**DROVERS JOURNAL**

<http://www.drovers.com/>

■  
**PROGRESSIVE FARMER**

<http://www.progressivefarmer.com/>



**(8-way vaccine)** is the second possibility. One example of a multiway clostridial vaccine, labeled for sheep, is **Covexin8**. Covexin8 is more reactive and may cause a higher incidence of adverse reaction at the injection site. Covexin8 may preferably be used in herds which have had problems with **blackleg** and **malignant edema (gas gangrene)**. Although blackleg and malignant edema are common and costly infections in sheep and cattle, they are very uncommon in goats.

**What dosage should be used and when should goats be vaccinated? Always read the instructions provided with the vaccine.** Following are label instructions from two common products:

1. *Clostridium perfringens* Types C and D + Tetanus

**Dosage:**

(Bar-Vac CD/T; Fermicon CD/T)  
- 2 mL per animal, regardless of age and weight

**When:**

**Bucks.** Once a year

**Breeding females.** 4 to 6 weeks before kidding. By vaccinating does in late pregnancy, some immunity will be passed on to the kids through the colostrum.

**Kids.** If breeding females have been vaccinated before kidding, vaccinate kids at 8 weeks of age, then give a booster at 12 weeks of age.

If breeding females have not been vaccinated before kidding and you experience problems, vaccinate kids at 2 weeks of age, then give a booster at 6 weeks of age.

2. Multivalent clostridial vaccine (Covexin8)

**Dosage (Shering-Plough)**

- 5 mL per animal, regardless of age and weight. Kids get 5 mL initially, then a 2 mL booster 6 weeks later.

**When:**

**Bucks.** Once a year

**Breeding females.** 2 to 6 weeks before kidding. By vaccinating does in late pregnancy, some immunity will be passed on to the kids through the colostrum.

**Kids.** If breeding females have been vaccinated before kidding, vaccinate kids at week 10 to 12 of age, then give

a booster at week 16 to 18 of age. If breeding females have not been vaccinated before kidding and you experience problems, vaccinate kids at 4 weeks of age, then give a booster at 10 weeks of age.

**How should I give the injections and where?**

Both *Clostridium perfringens* Types C D /Tetanus and multivalent clostridial vaccines are given in sub-cutaneous or intramuscular injections. Sub-cutaneous injections are favored because of the greater tissue damage at the injection site from intramuscular injections.

For sub-cutaneous injections, pinch loose skin between thumb and index finger high on the neck (as close to the head as possible) and insert the needle. Make sure that the needle is under the skin and does not stick out on the other of the pinched skin.

**Is there a slaughter withdrawal time?**

Yes, there is a 21 day waiting period between vaccination and slaughter for both vaccines.

**What are the 2001 catalog prices of the vaccines ?**

1. *Clostridium perfringens* Types C and D + Tetanus

| Size          | Dose      | Cost             |
|---------------|-----------|------------------|
| 20 mL bottle  | 10 doses  | \$3.95 to \$5.15 |
| 50 mL bottle  | 25 doses  | \$6.95           |
| 100 mL bottle | 50 doses  | \$13.85          |
| 250 mL bottle | 125 doses | \$23.95          |

2. Multivalent clostridial vaccine

50 mL bottle  
(10 initial or 25 booster doses):

**\$4.95**

250 mL bottle  
(50 initial or 125 booster doses):

**\$21.25**

**The bottom line**

A sickness in one goat or in the whole herd can cost much more when sick animals have to be treated compared to the cost of prevention. Some health problems cannot even be treated. Thus, prevention is the most important aspect of goat herd disease management.

## For Your Information

Submitted by: Dale Miller

According to an article published by the American Meat Institute on August 29, over half of all the foodborne illnesses reported in California between 1996 and 1998 can be blamed on alfalfa and clover sprouts. The study investigated six multi-county outbreaks and was published in the Annals of Internal Medicine in late August. Researchers found 600 confirmed cases of bacterial infections, including two deaths, were associated with eating sprouts. The study estimates an additional 22,800 people were infected without realizing the actual cause. Researchers determined that sprouts caused more outbreaks of E. Coli 0157:H7 and Salmonella than any other food or source, including meat, eggs and contaminated water. Sprout production methods, which involve high moisture and room temperatures, are ideal for bacterial growth. While most sprouts are eaten raw, FDA recommends through cooking prior to consumption.

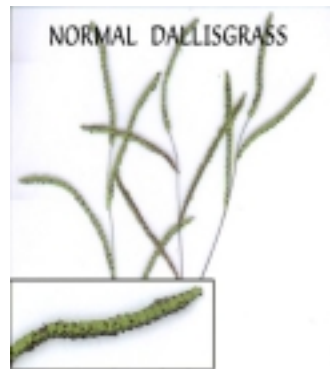
## Dallisgrass is good, but beware of staggers in late summer

by: Matt Poore

Dallisgrass is a high quality summer forage that is becoming more widespread, especially in the Piedmont. Few people have planted Dallisgrass in recent years, but it is a prolific seeder and apparently has spread naturally. It mixes well with fescue and clovers resulting in pastures that give both cool and warm season grazing. Producers blessed with these natural stands of dallisgrass have learned to favor growth of dallisgrass on some fields by fertilizing with

nitrogen in early summer, and to favor growth of fescue on other fields by fertilizing in the fall or early spring. It is probably also important to let dallisgrass make a seed crop every several years because it can suffer from winter kill.

We have a lot of dallisgrass on my home farm near Virgilina, VA, and in general it has been a very good thing for our operation. Its most important attributes are that it produces a lot of high quality summer



grazing, and dilutes the cow's intake of our endophyte infected fescue. The one disadvantage that it has is that in late summer it can cause a condition called dallisgrass poisoning which we experienced several times before we learned how to manage around the problem.

Dallisgrass poisoning (also known as Dallisgrass staggers) occurs several days after cattle ingest a significant amount of dallisgrass seedheads infected with an "ergot-like" fungus called *Claviceps paspali*. The seedheads typically are infected with the fungus in late summer and early fall, as the seedheads age. Rather than flat looking seeds on the heads, the infected heads have gray to black swellings that have a sticky sap material on them. Some observers say it looks like little popcorn (see photos of normal and infected seedheads). Usually not all the herd is affected, and it appears that it occurs when some animals develop a preference for the tips of the seedhead. The infected seedheads contain three primary toxins, paspalinine, and paspalitrem A and B, which are tremorgenic

alkaloids. The affected animals show neurological symptoms, including trembling of the major muscles and the head, jerky uncoordinated movements, and they also are spooky and sometimes



aggressive. The animals will startle and run, and often will fall in unusual positions. In bad cases the animals will go down, and may stay down for several days. Convulsions and death can occur in extreme cases. The symptoms are somewhat like grass tetany, but cattle don't show the sudden death characteristic of grass tetany, and don't immediately respond to treatment for grass tetany.

There is no treatment for the malady, except to get the cattle off the affected grass, and provide them with high quality forage. If possible they should be put in a field with no ponds, steep slopes, etc. as they commonly stumble around and end up injuring or drowning themselves. Usually cattle can completely recover from the poisoning.

In late summer and early fall we often have reports of dallisgrass poisoning, and it seems to be getting more common now because there is more dallisgrass in pastures in North Carolina. Toxicity usually is reported on farms with rank dallisgrass seedheads and the fungus present. In many cases producers had stayed off the pastures hoping to let the grass get a little more growth on it, and as a result the seedheads got old. In other cases, there are only a few cattle in large pastures, so the Dallisgrass grew faster than the cattle

Con't on page 4

[Past EAH e-Newsletters](#)

Con't from page 3

could consume it. Rarely do we get a report of a case where there were deaths of the affected cattle. It also seems that in many cases the younger cows are affected, which suggests that cows may learn to avoid eating too much of the seedheads after getting too much (cattle are known to learn to avoid poisonous plants in this way).

Dallisgrass is becoming an important part of many pastures in the piedmont and coastal plain. It is a very good quality warm season perennial, and provides great benefits to pasture systems, but the one drawback is the potential for Dallisgrass staggers. By rotational grazing the forage before seedheads get old the problem can be avoided, because cattle will readily eat the immature seedheads unlike some other grasses we are used to.

If you have dallisgrass on your farm, you should learn to identify the fungus infected seedheads and then scout your pastures for them starting in midsummer, especially before moving into a new field, or when fields are lightly stocked. If the seedheads do become infected, clipping them off at about 12" before grazing should help prevent the problem. Hay with high amounts of seedhead can also be a problem, so feeding dallisgrass hay along with other hay is advised, especially if infected seedheads are present.

For more information concerning dallisgrass poisoning contact your extension agent or veterinarian.



## Time to start stockpiling fescue for winter grazing

by: *Matt Poore*

If you have not already done so, early September is the time to apply nitrogen to fescue to stimulate growth for winter grazing. "Stockpiling fescue" refers to the practice of applying nitrogen in late summer and then allowing the forage to grow until early winter (December). We have done research with stockpiling for some years now, and in most years we get a very economical response in forage growth. However, stockpiling is not always profitable and you should consider the following points as you plan your winter feeding program.



**1) Start stockpiling early.** It is important to apply the nitrogen to pastures early, generally from August 15 to September 15. September and October can be dry months in North Carolina, and if you don't get a couple of good rains following the application of nitrogen then you may not get much of a response. Applying between 50 to 100 lbs of nitrogen per acre is recommended, with 75 lbs/acre being best for most situations. This should give a response of at least 750 to 1500 lbs of forage at a cost of about \$40/ton of standing forage.

Ammonium nitrate is the nitrogen source of choice in late summer as hot weather can lead to high volatile losses from urea. If there is a lot of clover on your farm, you actually might get more economical yields

by not applying nitrogen, and if you have access to poultry litter, it might also be an economical alternative to chemical fertilizer. If the soil is extremely dry, delay nitrogen application, but if dry conditions persist through September, then use your money to purchase alternative feeds instead of fertilizing.

**2) Make sure soil fertility is adequate.** You should be soil testing at least every other year and if needed, lime, phosphorus and potassium should be applied in addition to the nitrogen.

**3) Save stockpiled fescue until all other pastures are grazed.** When you assess your pasture situation this fall, plan on grazing the leftover summer grasses first before they lose their nutritional value. Next, graze pastures with a lot of clover and grasses other than fescue (orchardgrass, bluegrass, etc.) as they will not hold up to frost the way fescue does. Finally start into the fescue and graze it until it runs out. If you have stockpiled fescue, and find yourself out of pasture before you would normally start grazing the stockpile, go ahead and graze it, but don't overgraze it so you have additional regrowth to graze later.

**4) Use stripgrazing to decrease the amount of forage wasted.** Stockpiled fescue is only economical if you prevent a lot of waste of the available forage. Turning cattle into a large field of fescue will result in them wasting about 50% of the forage. Stripgrazing involves using a portable electric fence (polywire and tread-in posts) and moving it ahead of cattle to give them a strip that will last them from 1 to 3 days. This practice can reduce the waste to about 15% of the available forage.

**5) Push a pencil to compare economics of alternative wintering programs.** It seems to many producers new to this practice that stripgrazing is a lot of effort,

but consider the time and expense you save feeding hay by reducing forage waste. We recently did an economic analysis of three systems for wintering growing heifers. The first system involved cutting hay from the fall growth and feeding it back during winter, the second involved stockpiling the grass and grazing it with two week cattle moves followed by purchasing hay for the remainder of the winter, and the third was stockpiling and using daily-move stripgrazing. Cost of raising a growing heifer for 120 days was \$1.25/day for a hay feeding system, \$0.95/day for a stockpiling program with moving cattle every two weeks, and \$0.74/day for a stockpiling program with daily stripgrazing. When evaluating economics on your farm consider the cost of purchasing hay (in some areas high quality hay can be purchased very economically) and the possibility of other alternative feeds that may be even more economical than stockpiled fescue.

**6) Supplement cattle appropriately to get desired performance.** Fescue maintains high quality even into late winter, and nutrient concentrations are generally above the requirements for most animals including developing heifers. However, due to the presence of the endophyte in most fescue stands, cattle do not eat adequate amounts to meet their nutritional requirements. Over a 3 year period of research in Raleigh, unsupplemented heifers gained only about 1 lb/day on stockpiled fescue, despite the fact that protein stayed above 12% and TDN stayed above 65% for the entire winter.

In general, stockpiled fescue should be adequate for dry or lactating cows with moderate milk production, but will need to be supplemented for heavy milking cows, growing heifers or stocker cattle. When cows drop to a body condition of 5.0, they should be supplemented with 3-5 lbs per day cottonseed, or a concentrate feed. Growing cattle should receive about 5 lbs of concen-

trate (commercial cattle feed, corn and soybean meal, soybean hulls, corn gluten feed, etc.) to achieve gains of 1.5 to 1.75 lb/day while grazing stockpiled fescue. All cattle on stockpiled fescue should get a high quality mineral supplement free-choice.

**7) I enjoy managing cattle on grass!** One consideration that is often overlooked is that it is a real pleasure to manage cattle on grass during the winter. Cattle stay cleaner and healthier when they have fresh grass to graze and bed on. The reduction in mud and tractor time is a big benefit, because if you are like me, it is a lot more fun to move fence and watch cows graze than it is to slog through mud in a hay feeding area. One thing you might want to try is to keep enough stockpiled grass available to graze first calf heifers all the way through the winter. Not only is the forage higher quality than most hay, you will have fewer problems with calf scours because the calves and cows will stay cleaner.

If you have never intentionally stockpiled fescue and used stripgrazing to ration it out, I would strongly recommend starting it this year. I always make a point of trying various management practices at home on our cows before recommending them to producers, and stockpiling fescue has been one of the best things we have started doing. You can access a scientific review of stockpiled fescue management including our economic analysis on the [web at: http://www.asas.org/2000proc.htm](http://www.asas.org/2000proc.htm).

## New Tar Pamlico River Basin Agriculture Rule Affects Livestock Farmers

by: *Dr. Noah Ranells, Extension Associate, Crop Science Dept, NCSU*

A new rule became effective on September 1, 2001 that affects agriculture in the Tar

Pamlico River Basin. The goal of the rule is to reduce nitrogen loading by 30% and maintain phosphorous loading at 1991 levels.

If you are engaged in an agricultural operation that has livestock that meets the threshold in the table below, you will be affected by the rule. Youth livestock and poultry activities that are a structured part of an organized program conducted by a public or private educational institution or agricultural organization are exempt.

| Species | Number | Species  | Number |
|---------|--------|----------|--------|
| Horses  | 20     | Goats    | 130    |
| Cattle  | 20     | Turkeys  | 650    |
| Swine   | 150    | Chickens | 3,500  |
| Sheep   | 120    |          |        |

\*Note that any combination of species of livestock or poultry that exceeds 20,000 pounds of live weight is affected by this rule. Threshold numbers do not include nursing young.

You will be receiving additional information in the near future from your local agent, as well as from the local Soil and Water Conservation District. But in the short term, there are a few important items:

1. Farmers are needed to serve on the Local Advisory Committees (LACs). Five to ten farmers will be nominated to the LAC in each county or watershed.
2. One farmer is needed to serve on the Basin Oversight Committee (BOC).

If you are interested in serving on either of these committees, please contact your local soil and water conservation district staff or your local extension agent soon.

**TAR-PAMLIICO RIVER BASIN**

